

AMENDMENT TO THE CLAIMS

Claims 1-31 (Canceled)

32. (Previously presented) A method for making a disulfide, comprising the steps of:
- (1) oxidation of a mercaptan with sulfur, wherein the oxidation reaction has a 1-10% molar excess of mercaptan to sulfur;
 - (2) removing hydrogen sulfide;
 - (3) reacting the product of step (2) remaining after the hydrogen sulfide removal with hydrogen peroxide; and
 - (4) removing water to less than 1 wt%.
33. (Previously presented) The method of claim 32, wherein the mercaptan is β -mercaptoethanol and the disulfide is dithiodiglycol.
34. (Previously presented) The method of claim 32, wherein the mercaptan is selected from the group consisting of C₂ to C₂₀ alkyl mercaptans, cycloalkylmercaptans, functionalized mercaptans and acids and esters thereof.
35. (Previously presented) The method of claim 32, wherein the oxidation reaction has a 3-5% molar excess of mercaptan to sulfur.

36. (Previously presented) The method of claim 32, wherein the water is removed to less than 0.5 wt%.
37. (Previously presented) The method of claim 32, wherein greater than 80% of the hydrogen sulfide is removed.
38. (Previously presented) The method of claim 37, wherein greater than 90% of the hydrogen sulfide is removed.
39. (Previously presented) The method of claim 32, wherein the removal of the hydrogen sulfide is by vacuum, nitrogen sparge or a combination thereof.
40. (Previously presented) The method of claim 32, wherein the hydrogen peroxide in step (3) has a concentration of hydrogen peroxide in solution of between 5 wt% and 98 wt%.
41. (Previously presented) The method of claim 32, wherein the hydrogen peroxide in step (3) has a concentration of hydrogen peroxide in solution of between 25 wt% and 70 wt%.
42. (Previously presented) The method of claim 32, wherein the hydrogen peroxide in step (3) has a concentration of hydrogen peroxide in solution of between 27.5 wt% and 50 wt%.

- 43. (Previously presented) The method of claim 32, wherein the water removal in step (4) is by vacuum stripping.
- 44. (Previously presented) The method of claim 32, wherein the water removal in step (4) is by vacuum stripping with a nitrogen sparge.
- 45. (Previously presented) The method of claim 32, wherein the water removal in step (4) is by a wiped film evaporator.

Claims 46-47 (Canceled)

- 48. (Previously Presented) The method of claim 33, wherein the product of step (2) comprises greater than 92 wt% dithiodiglycol.
- 49. (Previously Presented) The method of claim 33, wherein the product of step (2) comprises less than 3 wt% trithiodiglycol.
- 50. (Previously Presented) The method of claim 33, wherein the product of step (2) comprises less than 5 wt% unreacted β -mercaptoethanol.
- 51. (Previously Presented) The method of claim 33, wherein the oxidation reaction has a 3-5% molar excess of mercaptan to sulfur.

52. (Previously Presented) The method of claim 33, wherein the removal of the hydrogen sulfide is by vacuum, nitrogen sparge or a combination thereof.
53. (Previously Presented) The method of claim 33, greater than 80% of the hydrogen sulfide is removed.
54. (Previously Presented) The method of claim 53, wherein greater than 90% of the hydrogen sulfide is removed.

Claims 55-61 (Canceled)

62. (Currently amended) The method of claim ~~32~~ 33, wherein the residual water is less than 0.5 wt%.
63. (Previously Presented) The method of claim 33, wherein the product of step (2) comprises greater than 87 wt% dithiodiglycol; less than 5 wt% trithiodiglycol; and less than 7 wt% unreacted β -mercaptoethanol.
64. (Previously Presented) The method of claim 33, wherein the residual β -mercaptoethanol in the product of step (3) is less than 0.02 wt% mercaptan.